

REAL-TIME MONITORING AND ANALYSIS OF DISTRIBUTED SOFTWARE SYSTEMS VIA THE WEB

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Web 2.0 and HTML5 is revolutionizing the way end-users interact with web pages and web sites via the World Wide Web. Instead of interacting with static web pages that require end-users to transparently surf between pages and achieve some variation of dynamic behavior related to new content, end-users now remain on the same page while new content is streamed from the web server. This advancement in technology is now bringing real-time capabilities to the web.

Current state-of-the-art frameworks built atop Web 2.0 and HTML5 that enable real-time capabilities via the web is called Asynchronous JavaScript and XML (AJAX). AJAX operates by contacting the web server in the background (i.e., without causing the browser to surf to a new page) and executing an infinite loop that continuously streams content, such as new instant messages and images, back to the client browser. Although AJAX enables real-time streaming of content, it is resource intensive on the server-side. An emerging technology called WebSockets has the potential to address many of the shortcomings of AJAX, such as resource intensity. It, however, is unknown how much WebSockets improves upon AJAX.

This research therefore compares the performance of AJAX and WebSockets. We perform this comparison by implementing a real-time dashboard for the Open-Source Architecture for Software Instrumentation of Systems (OASIS), which is an open-source framework for supporting real-time instrumentation of distributed software systems.